U. S. FOREST SERVICE

RESEARCH NOTE NC-17

NORTH CENTRAL FOREST EXPERIMENT STATION, FOREST SERVICE—U.S. DEPARTMENT OF AGRICULTURE

Folwell Avenue, St. Paul, Minnesota 55101

Botanical and Commercial Range of Tamarack In the Lake States

Accurate maps showing the distribution of important tree species are valuable to foresters, botanists, wildlife specialists, land managers, and others. Although the general natural ranges for our principal tree species have been well known for some time, new information continues to develop. Commercial ranges, however, have not previously been mapped precisely, and artificial extensions of ranges generally have not been mapped at all. For these reasons, range maps of the principal forest tree species have been prepared[1] for the Lake States (Michigan, Minnesota, and Wisconsin), and that for tamarack (*Larix laricina* (DuRoi) K. Koch) is presented here (fig. 1).

Accuracy depends in part on the scale of the map being used. On this map, it is not practical to separate out isolated stands except when they are some distance from the main range. Accordingly, the main range boundary as drawn may include several outliers near the edge of the principal distribution.

In the silvical characteristics reports for the Lake States tree species,[2] commercial ranges were mapped, but they were based on the following broad definition: "Commercial range is defined as that portion of the natural range in which the species grows to commercial size and is a major or important species in the type." In the present Note commercial ranges are defined on a wood volume basis and are indicated for each county that presently has at least 1,000 cords of tamarack (fig. 1). Counties with 10,000 to 99,000 cords and those with at least 100,000 cords are specially designated.

The commercial range is based primarily on published reports of the Forest Survey supplemented for completeness by unpublished data from the same source and modified where local information justifies it. For example, reports of the second Forest Survey in Southern Michigan (1947-1956) show commercial volumes in several counties in the Thumb, where tamarack stands are few, small, and scattered. These reports resulted from pooling timber volumes for adjacent lightly forested counties.

The natural range is based on the available published reports[3] as modified by the observations of qualified foresters and botanists[4] and by collections of specimens on file. A supplemental map (fig. 2) shows the plots used in making the distribution map. These plots were derived from actual herbarium specimens or from other reliable sources.

Within its natural range in the Lake States tamarack usually grows on organic soils in bogs and swamps. When planted, however, it will grow fairly well on very dry soils also. It makes its best growth on rich, moist but well-drained, loamy soils along streams, lakes, and swamps; seep areas; and shallow

[1] *Previously published reports in this series are for jack pine (U.S. Forest Serv. Res. Note LS-15, 1963), red pine (U.S. Forest Serv. Res. Note LS-62, 1965), eastern white pine (U.S. Forest Serv. Res. Note LS-63, 1965), white spruce (U.S. Forest Serv. Res. Note LS-73, 1965), black spruce (U.S. Forest Serv. Res. Note LS-74, 1965), and balsam fir (U.S. Forest Serv. Res. Note NC-16, 1966).*

[2] *See Lake States Forest Experiment Station, Station Paper 67 and related Station papers.*

[3] *Dodge, C. K. 1921. Miscellaneous papers on the botany of Michigan. Mich. Geol. and Biol. Survey, Publ. 31, Biol. Ser. 6.*

Fassett, Norman C. 1930. Preliminary reports on the flora of Wisconsin. V. Coniferales. Wis. Acad. Sci., Arts, and Lett. Trans. 25: 177-182, illus.

Roe, E. I. 1957. Silvical characteristics of tamarack. U.S. Forest Serv., Lake States Forest Exp. Sta., Sta. Pap. 52, 22 pp., illus. 1957.

[4] *Information in this Note has been reviewed by Dr. Paul Monson, University of Minnesota (Duluth); Dr. Thomas Morley, University of Minnesota (Minneapolis); Dr. Edward G. Voss, University of Michigan; Dr. John W. Andresen, Southern Illinois University; staff members of all Divisions of the North Central Forest Experiment Station and of its field offices in the Lake States; Staff members of the National Forests and State Conservation Departments in Michigan, Minnesota, and Wisconsin. L. O. Miller, Area Forester at Cassopolis, Mich., gave especially valuable help.*

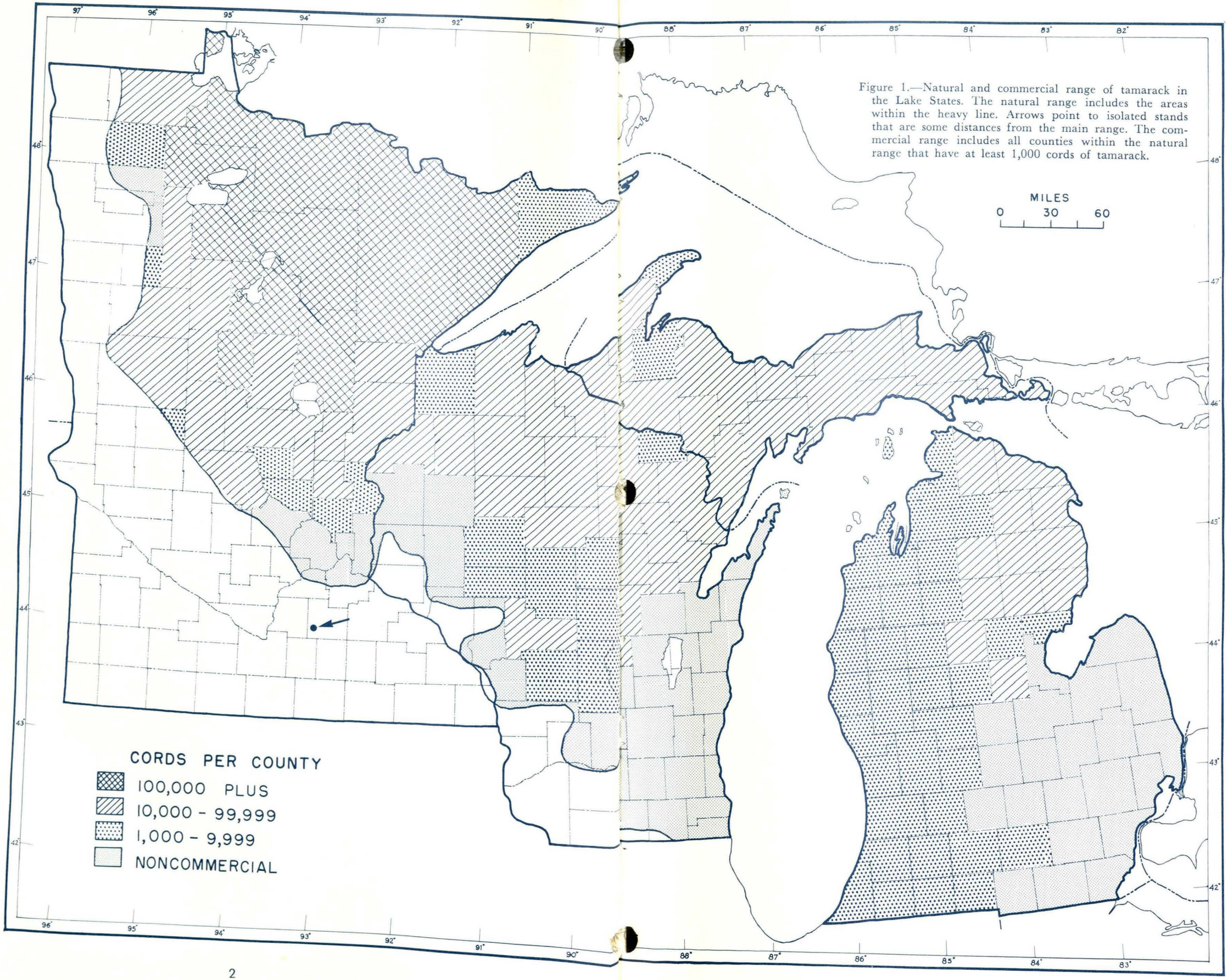
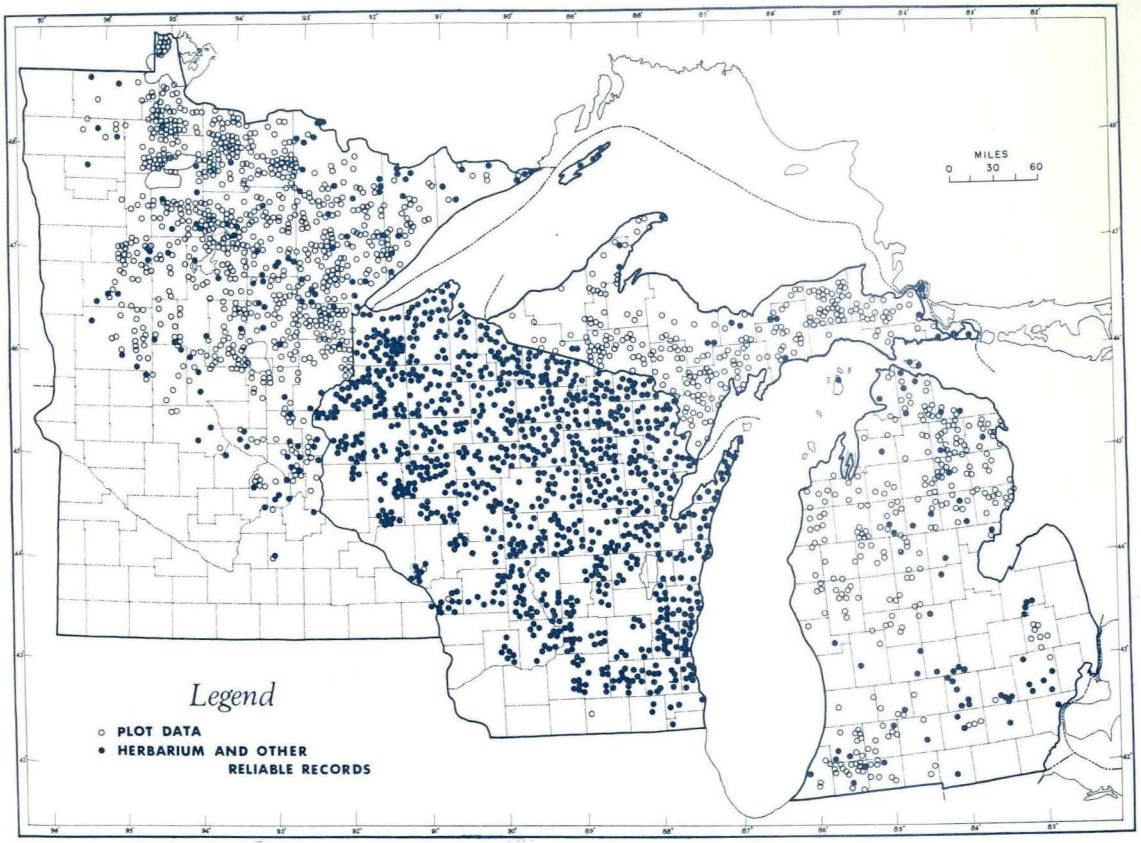


Figure 1.—Natural and commercial range of tamarack in the Lake States. The natural range includes the areas within the heavy line. Arrows point to isolated stands that are some distances from the main range. The commercial range includes all counties within the natural range that have at least 1,000 cords of tamarack.



layers of muck or well-decomposed peat over mineral soils. Pure stands are characteristic, but tamarack frequently grows with one or more associates, the most common of which in approximate order of frequency as they occur on some 770 Forest Survey plots are black spruce, northern white-cedar, balsam fir, paper birch, quaking aspen, eastern white pine, red maple, black ash, white spruce, and American elm. Associates vary geographically and according to site conditions. For example, in Minnesota red maple is a rare associate, but balsam poplar is moderately common.

The natural distribution of tamarack is outlined on the map. Planting of tamarack has not been common. There is little probability, therefore, that artificial regeneration will blur the outlines of the natural range in the foreseeable future, as it may for white spruce and the pines.

Figure 2.—Localities from which native tamarack is represented in established herbaria or other valid sources. Includes material from (1) the following herbaria: Cranbrook Institute of Science, Michigan State University, Milwaukee Public Museum, University of Michigan, University of Minnesota (Duluth), University of Minnesota (Minneapolis), University of Wisconsin (Madison), and University of Wisconsin (Milwaukee); (2) seed collection records of the North Central Forest Experiment Station, the University of Minnesota, and Michigan State University; (3) superior tree records of the North Central Forest Experiment Station; (4) seed production areas on record at the North Central Forest Experiment Station; (5) a vegetational survey made by Dr. Egolfs Bakuzis of the University of Minnesota; and (6) Fassett, 1930, (see footnote 3) for most of the Wisconsin locations.

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PAUL O. RUDOLF
Principal Silviculturist